level of reduction of such pollutants from a class or category of industrial sources. Effluent limitations must be reasonable under both tests.

iv. New source performance standards (NSPS) represent the best available demonstrated control technology standards. The intent of NSPS guidelines is to set limitations that represent state-of-the-art treatment technology for new sources.

The CWA requires U.S. EPA to develop effluent limitations, guidelines and standards (ELGs) representing application of BPT, BAT, BCT, and NSPS. Section 402(a)(1) of the CWA and 40 CFR section 125.3 authorize the use of BPJ to derive TBELs on a case-by-case basis where ELGs are not available for certain industrial categories and/or pollutants of concern. Where BPJ is used, the San Diego Water Board must consider specific factors outlined in 40 CFR section 125.3.

2. Applicable TBELs

a. Ocean Plan. The Ocean Plan is applicable, in its entirety, to point source discharges to the ocean. Therefore, the discharge of wastewater to the Pacific Ocean from the Facility is subject to the Ocean Plan.

The Ocean Plan establishes water quality objectives, general requirements for management of waste discharged to the ocean, effluent quality requirements for waste discharges, discharge prohibitions, and general provisions. Further, Table 2 of the Ocean Plan establishes TBELs for discharges of pollutants for which ELGs have not been established pursuant to sections 301, 302, 304, or 306 of the CWA. Based on Table 2 of the Ocean Plan, San Diego Water Board Order No. R9-2006-0065 established numeric effluent limitations for the discharge of effluent to the Pacific Ocean. Consistent with the requirements of the Ocean Plan, these effluent limitations have been carried over.

The TBELs from the Ocean Plan are summarized below:

Table F-8. Summary of TBELs

Parameter	Units	Effluent Limitations			
		Average Monthly	Average Weekly	Instantaneous Minimum	Instantaneous Maximum
Total Suspended Solids	mg/L	60	--	--	--
pH	standard units	--	--	6.0	9.0
Oil and Grease	mg/L	25	40	--	75
Settleable Solids	ml/L	1.0	1.5	--	3.0
Turbidity	NTU	75	100	--	225

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

CWA Section 301(b) and 40 CFR section 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards.

Section 122.44(d)(1)(i) of 40 CFR requires that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, water

quality-based effluent limitations (WQBELs) must be established using: (1) U.S. EPA criteria guidance under section 304(a) of the CWA, supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in 40 CFR section 122.44(d)(1)(vi).

The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plan and Ocean Plan, and to achieve applicable water quality objectives and criteria that are contained in the Ocean Plan.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

The Basin Plan and Ocean Plan designate beneficial uses, establish water quality objectives, and contain implementation programs and policies to achieve those objectives for all waters.

a. Basin Plan. The beneficial uses specified in the Basin Plan applicable to the Pacific Ocean are summarized in section III.C.1 of this Fact Sheet.

The Basin Plan includes water quality objectives for pH applicable to ocean waters is stated as follows: "*The pH value shall not be changed at any time more than 0.2pH units from that which occurs naturally.*"

The Basin Plan states: *"The terms and conditions of the State Board's "Water Quality Control Plan for Ocean Waters of California" (Ocean Plan), "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California" (Thermal Plan), and any revisions thereto are incorporated into this Basin Plan by reference. The terms and conditions of the Ocean Plan and Thermal Plan apply to the ocean waters within this Region."*

b. Ocean Plan. The beneficial uses specified in the Ocean Plan for the Pacific Ocean are summarized in section III.C.2 of this Fact Sheet. The Ocean Plan also includes water quality objectives for the ocean receiving water for bacterial characteristics, physical characteristics, chemical characteristics, biological characteristics, and radioactivity.

Table 1 of the Ocean Plan includes the following water quality objectives for toxic pollutants and whole effluent toxicity:

i. 6-month median, daily maximum, and instantaneous maximum objectives for 21 chemicals and chemical characteristics, including total chlorine residual and chronic toxicity, for the protection of marine aquatic life.

ii. 30-day average objectives for 20 non-carcinogenic chemicals for the protection of human health.

iii. 30-day average objectives for 42 carcinogenic chemicals for the protection of human health.

iv. Daily maximum objectives for acute and chronic toxicity.

Additionally, the Ocean Plan establishes receiving water objectives for salinity applicable to desalination facilities.

3. Determining the Need for WQBELs

Order No. R9-2006-0065 contained effluent limitations for non-conventional and toxic pollutant parameters based on the water quality objectives in Table 1 of the Ocean Plan. For this Order, the need for effluent limitations based on water quality objectives in Table 1 of the Ocean Plan was re-evaluated in accordance with 40 CFR section 122.44(d) and guidance for statistically determining the "reasonable potential" for a discharged pollutant to exceed an objective, as outlined in the revised *Technical Support Document for Water Quality-based Toxics Control* (TSD; EPA/505/2-90-001, 1991) and the Ocean Plan Reasonable Potential Analysis (RPA) Amendment that was adopted by the State Water Board on April 21, 2005. The statistical approach combines knowledge of effluent variability (as estimated by a coefficient of variation) with the uncertainty due to a limited amount of effluent data to estimate a maximum effluent value at a high level of confidence. This estimated maximum effluent value is based on a lognormal distribution of daily effluent values. Projected receiving water values (based on the estimated maximum effluent value or the reported maximum effluent value and minimum probably initial dilution) can then be compared to the appropriate objective to determine potential for an exceedance of that objective and the need for an effluent limitation. According to the Ocean Plan amendment, the RPA can yield one of three endpoints:

1) An effluent limitation is required, and monitoring is required;

2) An effluent limitation is not required, and the San Diego Water Board may require monitoring; or

3) The RPA is inconclusive, monitoring is required, and an existing effluent limitation may be retained, or a permit reopener clause may be included to allow inclusion of an effluent limitation if future monitoring warrants the inclusion. Endpoint 3 is typically the result when there are fewer than 16 data points and all are censored data (i.e., below quantitation or method detection levels for an analytical procedure).

The implementation provisions for Table 1 in section III.C of the Ocean Plan specify that the minimum initial dilution is the lowest average initial dilution within any single month of the year. Dilution estimates are to be based on observed waste flow characteristics, observed receiving water density structure, and the assumption that no currents, of sufficient strength to influence the initial dilution process, flow across the discharge structure. Before establishing a dilution credit for a discharge, it must first be determined if, and how much, receiving water is available to dilute the discharge.

Conventional pollutants were not considered as part of the RPA. TBELs for these pollutants are included in this Order as described in section IV.B of this Fact Sheet.

Using the RPcalc 2.0 software tool developed by the State Water Board for conducting RPAs, the San Diego Water Board has conducted the RPA for the constituents listed in Table F-9. For constituents that do not display reasonable potential, this Order includes desirable maximum effluent concentrations (MEC) which were derived using effluent limitation determination procedures described below and are referred to in this Order as "performance goals". A narrative limit statement to comply with all Ocean Plan objectives requirements is provided for those parameters not displaying reasonable potential. The Discharger is required to monitor for these parameters as stated in the Monitoring and Reporting Program (MRP) (Attachment E) to gather data for use in reasonable potential analyses for future permit reissuances.

Effluent data provided in the Discharger's monitoring reports for the Facility from March 2015 through January 2017 were used in the RPA. A minimum probable initial dilution of

21.83 to 1 was considered in this evaluation. A summary of the RPA results is provided below:

Table F-9. RPA Results Summary

Parameter	Units	n[1]	MEC[2,3]	Most Stringent Criteria	Background	RPA Endpoint[4]
Arsenic	µg/L	8	3.3	8[5]	3[6]	2
Cadmium	µg/L	8	0.044	1[5]	0	2
Chromium, Total Recoverable	µg/L	8	<0.0048	2[5]	0	3
Copper	µg/L	8	2.7	3[5]	2[6]	2
Lead	µg/L	8	0.91	2[5]	0	2
Mercury	µg/L	8	0.52	0.04[5]	0.0005[6]	3
Nickel	µg/L	8	8.9	5[5]	0	2
Selenium	µg/L	8	2.3	15[5]	0	2
Silver	µg/L	8	0.033	0.7[5]	0.16[6]	3
Zinc	µg/L	8	78	20[5]	8[6]	2
Cyanide	µg/L	8	<0.01	1[5]	0	3
Total Residual Chlorine[10]	µg/L	NA	NA	2[5]	0	NA
Ammonia	µg/L	8	520	600[5]	0	2
Acute Toxicity[7,11]	TUa	7	0.82	0.3	0	2
Chronic Toxicity	TUc	258	>40	1[7]	0	1
Phenolic Compounds	µg/L	8	<0.57	30[5]	0	3
Chlorinated Phenolics	µg/L	8	<0.57	1[5]	0	3
Endosulfan	µg/L	8	<0.003	0.009[5]	0	3
Endrin	µg/L	8	<0.001	0.002[5]	0	3
HCH[12]	µg/L	8	<0.004	0.004[5]	0	3
Radioactivity	pci/L	8	343	[8]	0	--
Acrolein	µg/L	8	<0.44	220[9]	0	3
Antimony	µg/L	8	0.88	1,200[9]	0	2
Bis(2-chloroethoxyl)methane	µg/L	8	<0.16	4.4[9]	0	3
Bis(2-chloroisopropyl)ether	µg/L	8	<0.16	1,200[9]	0	3
Chlorobenzene	µg/L	8	<0.21	570[9]	0	3
Chromium (III)	µg/L	8	5.3	190,000[9]	0	2
Di-n-butyl phthalate	µg/L	8	<0.12	3,500[9]	0	3
Dichlorobenzenes	µg/L	8	<0.37	5,100[9]	0	3
Diethyl phthalate	µg/L	8	<0.14	33,000[9]	0	3
Dimethyl phthalate	µg/L	8	<0.15	820,000[9]	0	3
4,6-Dinitro-2-methylphenol	µg/L	8	<0.12	220[9]	0	3
2,4-Dinitrophenol	µg/L	8	<0.14	4.0[9]	0	3
Ethylbenzene	µg/L	8	<0.17	4,100[9]	0	3
Fluoranthene	µg/L	8	<0.13	15[9]	0	3
Hexachlorocyclopentadiene	µg/L	8	<0.1	58[9]	0	3
Nitrobenzene	µg/L	8	<0.36	4.9[9]	0	3
Thallium	µg/L	8	1.2	2[9]	0	2
Toluene	µg/L	8	<0.22	85,000[9]	0	3
Tributyltin	µg/L	8	0.0019	0.0014[9]	0	3
1,1,1-Trichloroethane	µg/L	8	<0.38	540,000[9]	0	3
Acrylonitrile	µg/L	8	<0.27	0.10[9]	0	3
Aldrin	µg/L	8	<0.001	0.000022[9]	0	3
Benzene	µg/L	8	<0.23	5.9[9]	0	3
Benzidine	µg/L	8	<0.53	0.000069[9]	0	3
Beryllium	µg/L	8	<0.039	0.033[9]	0	3
Bis(2-chloroethyl) ether	µg/L	8	<0.14	0.045[9]	0	3

Parameter	Units	n[1]	MEC[2,3]	Most Stringent Criteria	Background	RPA Endpoint[4]
Bis(2-ethylhexyl) phthalate[13]	µg/L	14	36	3.5[9]	0	2
Carbon tetrachloride	µg/L	8	<0.32	0.90[9]	0	3
Chlordane	µg/L	8	<0.01	0.000023[9]	0	3
Chlorodibromomethane	µg/L	8	<0.29	8.6[9]	0	3
Chloroform	µg/L	8	<0.25	130[9]	0	3
DDT[12]	µg/L	8	<0.0038	0.00017[9]	0	3
1,4-Dichlorobenzene	µg/L	8	<0.15	18[9]	0	3
3,3-Dichlorobenzidine	µg/L	8	<0.9	0.0081[9]	0	3
1,2-Dichloroethane	µg/L	8	<0.24	28[9]	0	3
1,1-Dichloroethylene	µg/L	8	<0.34	0.9[9]	0	3
Dichlorobromomethane	µg/L	8	<0.28	6.2[9]	0	3
Dichloromethane	µg/L	8	<0.25	450[9]	0	3
1,3-Dichloropropene	µg/L	8	<0.22	8.9[9]	0	3
Dieldrin	µg/L	8	<0.001	0.00004[9]	0	3
2,4-Dinitrotoluene	µg/L	8	<0.16	2.6[9]	0	3
1,2-Diphenylhydrazine	µg/L	8	<0.25	0.16[9]	0	3
Halomethanes	µg/L	8	<1.05	130[9]	0	3
Heptachlor	µg/L	8	<0.0017	0.00005[9]	0	3
Heptachlor Epoxide	µg/L	8	<0.001	0.00002[9]	0	3
Hexachlorobenzene	µg/L	8	<0.008	0.00021[9]	0	3
Hexachlorobutadiene	µg/L	8	<0.14	14[9]	0	3
Hexachloroethane	µg/L	8	<0.15	2.5[9]	0	3
Isophorone	µg/L	8	<0.2	730[9]	0	3
N-nitrosodimethylamine	µg/L	8	<0.14	7.3[9]	0	3
N-nitrosodi-N-propylamine	µg/L	8	<0.21	0.38[9]	0	3
N-nitrosodiphenylamine	µg/L	8	<0.19	2.5[9]	0	3
PAHs	µg/L	8	<2	0.0088[9]	0	3
PCBs	µg/L	8	<0.42	0.000019[9]	0	3
TCDD equivalents[11]	µg/L	8	0.0000043	0.0000000039[9]	0	1
1,1,2,2-Tetrachoroethane	µg/L	8	<0.18	2.3[9]	0	3
Tetrachloroethylene	µg/L	8	<0.27	2.0[9]	0	3
Toxaphene	µg/L	8	<0.12	0.00021[9]	0	3
Trichloroethylene	µg/L	8	<0.35	27[9]	0	3
1,1,2-Trichloroethane	µg/L	8	<0.25	9.4[9]	0	3
2,4,6-Trichlorophenol	µg/L	8	<0.13	0.29[9]	0	3
Vinyl Chloride	µg/L	8	<0.33	36[9]	0	3

1 Number of data points available for the RPA.
2 If there is a detected value, the highest reported value is summarized in the table. If there are no detected values, the lowest MDL is summarized in the table.
3 Note that the reported MEC does not account for dilution. The RPA does account for dilution; therefore, it is possible for a parameter with an MEC in exceedance of the most stringent criteria not to present a RP (i.e. Endpoint 2).
4 End Point 1 – RP determined, limit required, monitoring required.
End Point 2 – Discharger determined not to have RP, monitoring may be established.
End Point 3 – RPA was inconclusive, carry over previous limitations if applicable, and establish monitoring.
5 Based on the 6-Month Median in the Table 1 of the Ocean Plan.
6 Background concentrations contained in Table 3 of the Ocean Plan.
7 Based on the Daily Maximum in Table 1 of the Ocean Plan.
8 Not to exceed limits specified in Title 17, Division 1, Chapter 5, Subchapter 4, Group 3, Article 3, section 30253 of the CCR. Levels of radioactivity that exceed the applicable criteria are not expected in the discharge.
9 Based on 30-Day Average in Table 1 of the Ocean Plan.
10 The Facility does not add or otherwise use chlorine in its process.
11 Four of the 11 reported acute toxicity measurements were recorded as 0 TUa. These data points were not included in the RPA since several steps require the log transformation of the reported data. Inclusion of these

data points would decrease the likelihood of determining an Endpoint 1 for acute toxicity and increase the likelihood of determining Endpoint 2; therefore, there exclusion does not bias the result of the RPA.

[12] As defined in Appendix A.

[13] The data range for bis (2-ethylhexyl) phthalate was evaluated from March 2015 through October 2017.

Consistent with 40 CFR 122.44(l)(2)(i)(B), effluent limitations from Order No. R9-2006-0065 will not be retained for constituents for which there is no reasonable potential (i.e. results with Endpoint 2.) Instead, performance goals have been assigned for these constituents. Parameters with Endpoint 2 are determined not to have reasonable potential, thus establishing effluent limitations is inappropriate for these parameters.

For parameters for which Endpoint 3 was concluded, reasonable potential was inconclusive. For parameters for which Endpoint 3 was concluded and previous effluent limitations had not been established, performance goals have been retained. The MRP (Attachment E) is intended to facilitate collection of additional information for these constituents to determine if reasonable potential exists in future permit reissuances and/or updates.

Reasonable potential to cause or contribute to an exceedance of water quality objectives contained within the Ocean Plan (i.e., Endpoint 1) was determined for Chronic Toxicity and TCDD equivalents, thus effluent limitations for Chronic Toxicity and TCDD equivalents have been established in this Order based on the initial dilution of 21.83 to 1, as discussed below.

The MRP (Attachment E) is designed to obtain additional information for these constituents to determine if reasonable potential exists for these constituents in future permit renewals and/or updates.

4. WQBEL and Performance Goal Calculations

a. From the Table 1 water quality objectives of the Ocean Plan, effluent limitations and performance goals are calculated according to the following equation for all pollutants, except for toxicity, radioactivity, and salinity:

Ce = Co + Dm (Co – Cs) where:

Ce = the effluent limitation (µg/L)
Co = the water quality objective to be met at the completion of initial dilution (µg/L)
Cs = background seawater concentration (µg/L)
Dm = minimum probable initial dilution expressed as parts seawater per part wastewater

b. Initial dilution (Dm) has been determined to be 21.83 to 1 by the Discharger through the application of U.S. EPA's dilution model, Visual Plumes.

c. Table 3 of the Ocean Plan establishes background concentrations for some pollutants to be used when determining reasonable potential (represented as "Cs"). In accordance with implementing procedures for Table 1 of the Ocean Plan, Cs equals zero for all pollutants not established in Table 3 of the Ocean Plan. The background concentrations provided in Table 3 of the Ocean Plan are summarized below:

Table F-10. Pollutants Having Background Concentrations

Pollutant	Background Seawater Concentration
Arsenic	3 µg/L
Copper	2 µg/L
Mercury	0.0005 µg/L
Silver	0.16 µg/L
Zinc	8 µg/L

d. As an example, performance goals for cyanide are determined as follows.

Water quality objectives from the Ocean Plan for cyanide are:

Table F-11. Example Parameter Water Quality Objectives

Parameter	Units	6-Month Median	Daily Maximum	Instantaneous Maximum
Cyanide	µg/L	1	4	10

Using the equation, Ce = Co + Dm (Co – Cs), effluent limitations/performance goals are calculated as follows:

Cyanide

Ce = 1 + 21.83 (1 – 0) = 22.83 (6-Month Median)
Ce = 4 + 21.83 (4 – 0) = 91.32 (Daily Maximum)
Ce = 10 + 21.83 (10 – 0) = 228.3 (Instantaneous Maximum)

Based on the implementing procedures described above, effluent limitations and performance goals have been calculated for all Table 1 pollutants from the California Ocean Plan and incorporated into this Order.

e. Section 122.45(f)(1) of 40 CFR requires that effluent limitations be expressed in terms of mass, with some exceptions, and 40 CFR section 122.45(f)(2) allows pollutants that are limited in terms of mass to additionally be limited in terms of other units of measurement. This Order includes effluent limitations expressed in terms of mass and concentration. In addition, pursuant to the exceptions to mass limitations provided in 40 CFR section 122.45(f)(1), some effluent limitations are not expressed in terms of mass, such as pH and temperature, and when the applicable standards are expressed in terms of concentration (e.g., California Toxics Rule (CTR) criteria and Maximum Contaminant Levels) and mass limitations are not necessary to protect the beneficial uses of the receiving water.

Mass-based effluent limitations were calculated using the following equation:

MER (lbs/day) = Permitted Flow (MGD) x Pollutant Concentration (mg/L) x 8.34

f. Based on the results of the RPA, a summary of the WQBELs established in this Order are provided below:

Table F-12. Summary of Water Quality-based Effluent Limitations (WQBELs)

Parameter	Unit	Effluent Limitations			
		6-Month Median	Maximum Daily	Instantaneous Maximum	30-Day Average
OBJECTIVES FOR PROTECTION OF MARINE AQUATIC LIFE					
Chronic Toxicity	Pass/Fail	--	Pass	--	--
OBJECTIVES FOR PROTECTION OF HUMAN HEALTH - CARCINOGENS					
TCDD Equivalents	µg/L	--	--	--	8.90E-08
	lbs/day[1]	--	--	--	1.77E-07

[1] Calculated based on a flow of 238 MGD.

g. A summary of the performance goals is provided in Table F-13 of this Fact Sheet. Performance goals are calculated for monitoring location M-001 using the design capacity of 238 MGD.

Table F-13. Summary of Performance Goals[1]

Parameter	Unit[3]	Performance Goals[2]			
		6-Month Median	Maximum Daily	Instantaneous Maximum	Average Monthly
OBJECTIVES FOR PROTECTION OF MARINE AQUATIC LIFE					
Arsenic, Total Recoverable	µg/L	1.2E+02	6.7E+02	1.8E+03	--
	lbs/day	2.38E+02	1.32E+03	3.50E+03	--
Cadmium, Total Recoverable	µg/L	2.28E+01	9.13E+01	2.28E+02	--
	lbs/day	4.53E+01	1.81E+02	4.53E+02	--
Chromium VI[3]	µg/L	4.57E+01	1.83E+02	4.57E+02	--
	lbs/day	9.06E+01	3.63E+02	9.06E+02	--
Copper, Total Recoverable	µg/L	2.48E+01	2.30E+02	6.41E+02	--
	lbs/day	4.93E+01	4.57E+02	1.27E+03	--
Lead, Total Recoverable	µg/L	4.57E+01	1.83E+02	4.57E+02	--
	lbs/day	9.06E+01	3.63E+02	9.06E+02	--
Mercury, Total Recoverable	µg/L	9.02E-01	3.64E+00	9.12E+00	--
	lbs/day	1.79E+00	7.23E+00	1.81E+01	--
Nickel, Total Recoverable	µg/L	1.14E+02	4.57E+02	1.14E+03	--
	lbs/day	2.27E+02	9.06E+02	2.27E+03	--
Selenium, Total Recoverable	µg/L	3.42E+02	1.37E+03	3.42E+03	--
	lbs/day	6.80E+02	2.72E+03	6.80E+03	--
Silver, Total Recoverable	µg/L	1.25E+01	6.04E+01	1.56E+02	--
	lbs/day	2.48E+01	1.20E+02	3.10E+02	--
Zinc, Total Recoverable	µg/L	2.82E+02	1.65E+03	4.39E+03	--
	lbs/day	5.60E+02	3.28E+03	8.72E+03	--
Cyanide, Total Recoverable	µg/L	2.28E+01	9.13E+01	2.28E+02	--
	lbs/day	4.53E+01	1.81E+02	4.53E+02	--
Total Chlorine Residual	µg/L	4.57E+01	1.83E+02	1.37E+03	--

Parameter	Unit[3]	Performance Goals[2]			
		6-Month Median	Maximum Daily	Instantaneous Maximum	Average Monthly
	lbs/day	9.06E+01	3.63E+02	2.72E+03	--
Ammonia (expressed as nitrogen)	µg/L	1.37E+04	5.48E+04	1.37E+05	--
	lbs/day	2.72E+04	1.09E+05	2.72E+05	--
Phenolic Compounds (non-chlorinated)	µg/L	6.85E+02	2.74E+03	6.85E+03	--
	lbs/day	1.36E+03	5.44E+03	1.36E+04	--
Chlorinated Phenolics	µg/L	2.28E+01	9.13E+01	2.28E+02	--
	lbs/day	4.53E+01	1.81E+02	4.53E+02	--
Endosulfan	µg/L	2.05E-01	4.11E-01	6.16E-01	--
	lbs/day	4.08E-01	8.16E-01	1.22E+00	--
Endrin	µg/L	4.57E-02	9.13E-02	1.37E-01	--
	lbs/day	9.06E-02	1.81E-01	2.72E-01	--
HCH	µg/L	9.13E-02	1.83E-01	2.74E-01	--
	lbs/day	1.81E-01	3.63E-01	5.44E-01	--
Radioactivity	pCi/L	Not to exceed limits specified in Title 17, Division 1, Chapter 5, Subchapter 4, Group 3, Article 3, section 30253 of the CCR, Reference to section 30253 is prospective, including future changes to any incorporated provisions of federal law, as the changes take effect.			
OBJECTIVES FOR PROTECTION OF HUMAN HEALTH – NONCARCINOGENS					
Acrolein	µg/L	--	--	--	5.02E+03
	lbs/day	--	--	--	9.97E+03
Antimony	µg/L	--	--	--	2.74E+04
	lbs/day	--	--	--	5.44E+04
Bis(2-chloroethoxy) Methane	µg/L	--	--	--	1.00E+02
	lbs/day	--	--	--	1.99E+02
Bis(2-chloroisopropyl) Ether	µg/L	--	--	--	2.74E+04
	lbs/day	--	--	--	5.44E+04
Chlorobenzene	µg/L	--	--	--	1.30E+04
	lbs/day	--	--	--	2.58E+04
Chromium (III)	µg/L	--	--	--	4.34E+06
	lbs/day	--	--	--	8.61E+06
Di-n-butyl Phthalate	µg/L	--	--	--	7.99E+04
	lbs/day	--	--	--	1.59E+05
Dichlorobenzenes	µg/L	--	--	--	1.16E+05
	lbs/day	--	--	--	2.31E+05
Diethyl Phthalate	µg/L	--	--	--	7.53E+05
	lbs/day	--	--	--	1.50E+06
Dimethyl Phthalate	µg/L	--	--	--	1.87E+07
	lbs/day	--	--	--	3.72E+07

Parameter	Unit[3]	Performance Goals[2]			
		6-Month Median	Maximum Daily	Instantaneous Maximum	Average Monthly
4,6-dinitro-2-methylphenol	µg/L	--	--	--	5.02E+03
	lbs/day	--	--	--	9.97E+03
2,4-dinitrophenol	µg/L	--	--	--	9.13E+01
	lbs/day	--	--	--	1.81E+02
Ethylbenzene	µg/L	--	--	--	9.36E+04
	lbs/day	--	--	--	1.86E+05
Fluoranthene	µg/L	--	--	--	3.42E+02
	lbs/day	--	--	--	6.80E+02
Hexachlorocyclopentadiene	µg/L	--	--	--	1.32E+03
	lbs/day	--	--	--	2.63E+03
Nitrobenzene	µg/L	--	--	--	1.12E+02
	lbs/day	--	--	--	2.22E+02
Thallium, Total Recoverable	µg/L	--	--	--	4.57E+01
	lbs/day	--	--	--	9.06E+01
Toluene	µg/L	--	--	--	1.94E+06
	lbs/day	--	--	--	3.85E+06
Tributyltin	µg/L	--	--	--	3.20E-02
	lbs/day	--	--	--	6.34E-02
1,1,1-trichloroethane	µg/L	--	--	--	1.23E+07
	lbs/day	--	--	--	2.45E+07
OBJECTIVES FOR PROTECTION OF HUMAN HEALTH – CARCINOGENS					
Acrylonitrile	µg/L	--	--	--	2.28E+00
	lbs/day	--	--	--	4.53E+00
Aldrin	µg/L	--	--	--	5.02E-04
	lbs/day	--	--	--	9.97E-04
Benzene	µg/L	--	--	--	1.35E+02
	lbs/day	--	--	--	2.67E+02
Benzidine	µg/L	--	--	--	1.58E-03
	lbs/day	--	--	--	3.13E-03
Beryllium	µg/L	--	--	--	7.53E-01
	lbs/day	--	--	--	1.50E+00
Bis(2-chloroethyl) Ether	µg/L	--	--	--	1.03E+00
	lbs/day	--	--	--	2.04E+00
Bis(2-ethylhexyl)phthalate	µg/L	--	--	--	7.99E+01
	lbs/day	--	--	--	1.59E+02
Carbon Tetrachloride	µg/L	--	--	--	2.05E+01
	lbs/day	--	--	--	4.08E+01
Chlordane	µg/L	--	--	--	5.25E-04

Parameter	Unit[3]	Performance Goals[2]			
		6-Month Median	Maximum Daily	Instantaneous Maximum	Average Monthly
	lbs/day	--	--	--	1.04E-03
Chlorodibromomethane	µg/L	--	--	--	1.96E+02
	lbs/day	--	--	--	3.90E+02
Chloroform	µg/L	--	--	--	2.97E+03
	lbs/day	--	--	--	5.89E+03
DDT	µg/L	--	--	--	3.88E-03
	lbs/day	--	--	--	7.70E-03
1,4-dichlorobenzene	µg/L	--	--	--	4.11E+02
	lbs/day	--	--	--	8.16E+02
3,3'-dichlorobenzidine	µg/L	--	--	--	1.85E-01
	lbs/day	--	--	--	3.67E-01
1,2-dichloroethane	µg/L	--	--	--	6.39E+02
	lbs/day	--	--	--	1.27E+03
1,1-dichloroethylene	µg/L	--	--	--	2.05E+01
	lbs/day	--	--	--	4.08E+01
Dichlorobromomethane	µg/L	--	--	--	1.42E+02
	lbs/day	--	--	--	2.81E+02
Dichloromethane	µg/L	--	--	--	1.03E+04
	lbs/day	--	--	--	2.04E+04
1,3-dichloropropene	µg/L	--	--	--	2.03E+02
	lbs/day	--	--	--	4.03E+02
Dieldrin	µg/L	--	--	--	9.13E-04
	lbs/day	--	--	--	1.81E-03
2,4-dinitrotoluene	µg/L	--	--	--	5.94E+01
	lbs/day	--	--	--	1.18E+02
1,2-diphenylhydrazine	µg/L	--	--	--	3.65E+00
	lbs/day	--	--	--	7.25E+00
Halomethanes	µg/L	--	--	--	2.97E+03
	lbs/day	--	--	--	5.89E+03
Heptachlor	µg/L	--	--	--	1.14E-03
	lbs/day	--	--	--	2.27E-03
Heptachlor Epoxide	µg/L	--	--	--	4.57E-04
	lbs/day	--	--	--	9.06E-04
Hexachlorobenzene	µg/L	--	--	--	4.79E-03
	lbs/day	--	--	--	9.52E-03
Hexachlorobutadiene	µg/L	--	--	--	3.20E+02
	lbs/day	--	--	--	6.34E+02
Hexachloroethane	µg/L	--	--	--	5.71E+01

Parameter	Unit[3]	Performance Goals[2]			
		6-Month Median	Maximum Daily	Instantaneous Maximum	Average Monthly
	lbs/day	--	--	--	1.13E+02
Isophorone	µg/L	--	--	--	1.67E+04
	lbs/day	--	--	--	3.31E+04
N-nitrosodimethylamine	µg/L	--	--	--	1.67E+02
	lbs/day	--	--	--	3.31E+02
N-nitrosodi-N-propylamine	µg/L	--	--	--	8.68E+00
	lbs/day	--	--	--	1.72E+01
N-nitrosodiphenylamine	µg/L	--	--	--	5.71E+01
	lbs/day	--	--	--	1.13E+02
PAHs	µg/L	--	--	--	2.01E-01
	lbs/day	--	--	--	3.99E-01
PCBs	µg/L	--	--	--	4.34E-04
	lbs/day	--	--	--	8.61E-04
1,1,2,2-tetrachloroethane	µg/L	--	--	--	5.25E+01
	lbs/day	--	--	--	1.04E+02
Tetrachloroethylene	µg/L	--	--	--	4.57E+01
	lbs/day	--	--	--	9.06E+01
Toxaphene	µg/L	--	--	--	4.79E-03
	lbs/day	--	--	--	9.52E-03
Trichloroethylene	µg/L	--	--	--	6.16E+02
	lbs/day	--	--	--	1.22E+03
1,1,2-trichloroethane	µg/L	--	--	--	2.15E+02
	lbs/day	--	--	--	4.26E+02
2,4,6-trichlorophenol	µg/L	--	--	--	6.62E+00
	lbs/day	--	--	--	1.31E+01
Vinyl Chloride	µg/L	--	--	--	8.22E+02
	lbs/day	--	--	--	1.63E+03

[1] See Attachment A for definitions, abbreviations, and a glossary of common terms used in this Order.
[2] Scientific "E" notation is used to express certain values. In scientific "E" notation, the number following the "E" indicates that position of the decimal point in the value. Negative numbers after the "E" indicate that the value is less than 1, and positive numbers after the "E" indicate that the value is greater than 1. In this notation a value of 6.1E-02 represents 6.1×10^{-2} or 0.061, 6.1E+02 represents 6.1×10^{2} or 610, and 6.1E+00 represents 6.1×10^{0} or 6.1.
[3] The MER, in lbs/day, is calculated based on the following equation:
MER (lbs/day) = 8.34 x Q x C, where Q is the flow rate of 238 MGD and C is the concentration in mg/L.
[4] The Discharger may, at their option, apply this performance goal as a total chromium performance goal.

5. Water Quality Limitations for Salinity

Chapter III.M.3.b of the Ocean Plan requires the inclusion of an effluent limitation necessary to meet the receiving water limitation of a daily maximum of 2.0 ppt above natural salinity at the edge of a 100-meter brine mixing zone (BMZ) measured horizontally from the discharge point. There is no vertical limit to this zone.

Chapter III.M.3.d of the Ocean Plan allows for facilities to receive a BMZ of up to 200 meters laterally from the discharge point that (a) have received a conditional Water Code section 13142.5(b) determination, (b) are over 80 percent constructed by the effective date of the Desalination Amendment, and (c) propose flow augmentation using a surface water discharge. To receive the 200-meter BMZ, the Discharger must demonstrate that the combination of the expanded BMZ and flow augmentation using a surface water intake provide a comparable level of intake and mortality of all forms of marine life as the combination of the 100-meter BMZ and wastewater dilution if wastewater is available, or multiport diffusers if wastewater is unavailable. Additionally, the discharge shall not result in hypoxic conditions outside the BMZ.

The Facility meets the requirements to apply for an expanded BMZ of up to 200 meters because: (a) the Facility has previously received a conditional Water Code section 13142.5(b) determination, (b) the Facility was over 80 percent constructed prior to the effective date of the Desalination Amendment, and (c) the Discharger proposes flow augmentation using a surface water discharge.

The Discharger submitted an entrainment study, based on Tenera Environmental' s 2008 Encina Power Station *Clean Water Act Section 316(b) Impingement Mortality and Entrainment Characterization Study,* as Appendix K of the 2015 ROWD. The Discharger subsequently revised the entrainment effects calculations as recommended by the SAP and provided the results as Appendices FFF and GGG to the ROWD. The studies found that for this Facility, flow augmentation with a surface water intake and an expanded BMZ of 200 meters is more protective than a 100-meter BMZ using a multiport diffuser. The study found that the use of wastewater was infeasible due to limited flow for dilution and limited capacity at any nearby existing wastewater outfalls.

Appendix BB of the 2015 ROWD concludes that a 200-meter BMZ, with a minimum dilution of 3.31:1 in the ocean for the diluted effluent, is needed to achieve the salinity receiving water limitation. Consistent with chapter III.M.3.d of the Ocean Plan, this Order establishes an expanded BMZ of 200 meters.

In determining the effluent limit(s) necessary to meet the receiving water limitation at the edge of the BMZ, the Ocean Plan establishes the following formula:

$$Ce = (2.0 \text{ ppt} + Cs) + Dm(2.0 \text{ ppt})$$

Where:

Ce = the maximum daily effluent concentration limit in ppt

Co = the salinity concentration to be met at the BMZ; i.e. Co = 2.0 ppt + Cs

Cs = the natural background salinity (defined as a 20 year monthly mean)

Dm = minimum probable initial dilution expressed as parts seawater per part brine discharge

Natural background salinity at Scripps Pier in San Diego was recorded from 1993 through 2012, and the monthly means were calculated and established. The monthly means ranged from 33.4 ppt through 33.7 ppt. Using the lowest background salinity (applicable for January, February, and March; representative of the most conservative limitation), the following salinity effluent limitation would result:

$$Ce = (2.0 \text{ ppt} + 33.4 \text{ ppt}) + 3.31(2.0 \text{ ppt}) = 42.0 \text{ ppt}.$$

The Discharger has confirmed that the diluted effluent will not exceed 42.0 ppt, and the supporting studies (antidegradation analysis, hydrodynamic discharge study, acute and

chronic tolerance studies[1]) are based on an effluent concentration not to exceed 42.0 ppt. Further, the Discharger specifically proposed an effluent limitation of 42.0 ppt within their *Hydrodynamic Discharge Study* (Appendix C and revised in Appendices BB and VV of the 2015 ROWD), which is representative of a dilution of 3.31:1, and is anticipated to be protective of water quality and beneficial uses. An effluent limitation of 42.0 ppt is conservative and protective during all months of the year.

Order No. R9-2006-0065 had established an average daily effluent limitation for total dissolved solids (TDS) of 40 ppt and an average hourly limitation of 44 ppt based on a review of technical literature and the assumed water quality impacts. Due to Anti-backsliding regulations, this Order retains these limitations for co-located operations, in addition to the salinity limitations required by the Ocean Plan. The TDS limitations are not retained for stand-alone operations. Stand-alone operations represent a substantial alteration to the permitted Facility and the alteration of the salinity limitation is consistent with section 402(o)(2) of the CWA. As discussed above, salinity is addressed based on the Ocean Plan salinity receiving water limitation that discharges shall not exceed a daily maximum of 2.0 ppt above natural background salinity at the edge of the BMZ. The implementation of two salinity limitations is duplicative and unnecessary for the protection of water quality. As detailed in the Discharger's antidegradation analysis, a maximum daily effluent limitation of 42.0 ppt is protective of water quality, aquatic life, and beneficial uses.

6. Whole Effluent Toxicity (WET)

a. WET testing protects receiving waters from the aggregate toxic effect of a mixture of pollutants in the effluent. The effluent from the Facility will consist of concentrated pollutants that were present in the influent and pollutants that are introduced as part of the treatment process. Therefore, the Facility's effluent has a potential for toxic constituents in toxic amounts to be present, or could have additive, synergistic, or antagonistic effects.

b. Order No. R9-2006-0065 also established acute toxicity performance goals and monitoring requirements for the discharge. An acute toxicity test is conducted over a short time period and measures mortality of marine species. A chronic toxicity test is conducted over a longer exposure period of time and may measure mortality, reproduction, and growth. A chemical at a low concentration could have chronic effects but no acute effects until the chemical is at a higher concentration. Thus, chronic toxicity is a more stringent requirement than acute toxicity. This Order removes performance goals and monitoring requirements for acute toxicity and retains effluent limitations and monitoring requirements for chronic toxicity. Removal of the numeric acute toxicity performance goals does not constitute backsliding because chronic toxicity is a more stringent requirement than acute toxicity. Effluent limitations for chronic toxicity are necessary, feasible, and appropriate because effluent data exhibited reasonable potential to cause or contribute to an exceedance of the toxicity water quality objectives.

c. Order No. R9-2006-0065 established effluent limitations and monitoring requirements for chronic toxicity. Using the RPA procedures outlined in the Ocean Plan, the effluent demonstrated reasonable potential to cause an exceedance of the narrative water quality objective for chronic toxicity (i.e., Endpoint 1). Therefore, this Order retains effluent limitations and monitoring for chronic toxicity.

[1] These studies are in Appendices G, H, M, BB, and VV of the 2015 ROWD.

Compliance with this chronic toxicity effluent limitation shall be evaluated using the Test of Significant Toxicity (TST) statistical approach at the discharge "in-stream" waste concentration (IWC), as described in section VII.L of this Order and section III.C of the MRP (Attachment E). The TST statistical approach is described in the *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010), Appendix A, Figure A-1 and Table A-1. The TST null hypothesis shall be "mean discharge IWC response ≤ 0.75 × mean control response." A test that rejects this null hypothesis shall be reported as "pass." A test that does not reject this null hypothesis shall be reported as "fail." Discharger shall also report the "percent effect" as part of chronic toxicity result.

Section III.F of the Ocean Plan provides for more stringent requirements if necessary, to protect the designated beneficial uses of ocean waters. Diamond *et al.* (2013) examined the side-by-side comparison of No-Observed-Effect-Concentration (NOEC) and TST results using California chronic toxicity test data for the West Coast marine methods and test species required under this Order. See Table 1 (method types 1 through 5) on page 1103 in Diamond J, Denton D, Roberts J, Zheng L. 2013. *Evaluation of the Test of Significant Toxicity for Determining the Toxicity of Effluents and Ambient Water Samples* (Environ Toxicol Chem 32:1101-1108). This comparison shows that while the TST and NOEC statistical approaches perform similarly most of the time, the TST performs better in identifying toxic and nontoxic samples, a desirable characteristic for chronic toxicity testing conducted under this Order. This examination also signals that the test methods' false positive rate (β no higher than 0.05 at a mean effect of 10%) and false negative rate (α no higher than 0.05 (0.25 for topsmelt) at a mean effect of 25%) are indeed low. This highlights that using the TST in this Order - in conjunction with other Ocean Plan requirements (West Coast WET method/test species for monitoring and limiting chronic toxicity, the IWC representing the critical condition for water quality protection, the initial dilution procedure, and a single test for compliance) - provides increased assurance that statistical error rates are more directly addressed and accounted for in decisions regarding chronic toxicity in the discharge. As a result, and in accordance with Ocean Plan section III.F, the San Diego Water Board is exercising its discretion to use the TST statistical approach for this discharge.

This Order contains a reopener at section VI.C.1.c.vii allowing the San Diego Water Board to reopen and modify the Order, if necessary, to make requirements consistent with any new statewide plan or amendment to a plan adopted by the State Water Board for assessing the toxicity of effluent or receiving waters.

d. The Ocean Plan's approach to chronic toxicity WQBELs is based on a "toxic unit" derived from one multi-concentration toxicity test. In 2010, U.S. EPA endorsed the TST statistical approach in *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010) used in this NPDES permit. Compliance with the chronic toxicity maximum daily effluent limitation (MDEL) shall be evaluated using the TST statistical approach at the discharge IWC, as described in section VII.L of the Order and in section III.C of the MRP (Attachment E). The TST statistical approach is described in *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010), Appendix A, Figure A-1 and Table A-1.

In January 2010, U.S. EPA published a guidance document titled *EPA Regions 8, 9 and 10 Toxicity Training Tool*, which among other things discusses permit limitation expression for chronic toxicity. The document acknowledges that NPDES regulations

at 40 CFR section 122.45(d) require that all permit limits be expressed, unless impracticable, as a maximum daily and average monthly effluent limitation (AMEL) for all dischargers other than publicly owned treatment works. Following section 5.2.3 of the *Technical Support Document for Water Quality-based Toxics Control* (TSD), the use of an AMEL is not appropriate for WET. In lieu of an AWEL and AMEL, U.S. EPA recommends establishing a maximum daily effluent limitation (MDEL) for toxic pollutants and pollutants in water quality permitting, including WET. This is appropriate for two reasons. (1) The basis for the average monthly requirement derives from secondary treatment regulations and is not related to the requirement to assure achievement of water quality standard. (2) An average weekly and an average monthly requirement comprising up to seven and thirty-one daily samples, respectively, could average out daily peak toxic concentrations for WET and, therefore, the discharge's potential for causing acute and chronic effects would be missed. An AWEL and AMEL for chronic toxicity is impracticable because short-term spikes of toxicity levels that would be permissible under the 7-day and 31-day average scheme, respectively, would not be adequately protective of all beneficial uses. The MDEL is the highest allowable value for the discharge measured during a calendar day or 24-hour period representing a calendar day. This approach is comparable to that of the Ocean Plan, which calls for a chronic toxicity MDEL.

Later, in June 2010, U.S. EPA published another guidance document titled *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, June 2010), in which the following was recommended: "*Permitting authorities should consider adding the TST approach to their implementation procedures for analyzing valid WET data for their current NPDES WET Program.*" The TST approach is another statistical option for analyzing valid WET test data. Use of the TST approach does not result in any changes to U.S. EPA's WET test methods. Section 9.4.1.2 of U.S. EPA's *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms* (EPA/600/R-95-136, August 1995), recognizes that, "*the statistical methods in this manual are not the only possible methods of statistical analysis*." The TST approach can be applied to acute (survival) and chronic (sublethal) endpoints and is appropriate to use for both freshwater and marine EPA WET test methods.

The U.S. EPA's WET testing program and acute and chronic WET methods rely on the measurement result for a specific test endpoint, not upon achievement of specified concentration-response patterns to determine toxicity. U.S. EPA's WET methods do not require achievement of specified effluent or ambient concentration-response patterns prior to determining that toxicity is present.[2] Nevertheless, U.S. EPA's acute and chronic WET methods require that effluent and ambient concentration-response patterns generated for multi-concentration acute and chronic toxicity tests be reviewed - as a component of test review following statistical analysis - to ensure that the calculated measurement result for the toxicity test is interpreted appropriately. (EPA-821-R-02-012, section 12.2.6.2; EPA-821-R-02-013, section 10.2.6.2). In 2000, U.S. EPA provided guidance for such reviews to ensure that test endpoints for determining toxicity based on the statistical approaches utilized at the time the guidance was written (NOEC, percent waste giving 50 percent survival of test organisms (lethal concentration 50, LC 50), and effects concentration at 25 percent (EC25)) were calculated appropriately (EPA 821-B-00-004).

[2] See, Supplementary Information in support of the Final Rule establishing WET test methods at 67 Fed. Reg. 69952, 69963, Nov. 19, 2002.

U.S. EPA designed its 2000 guidance as a standardized step-by step review process that investigates the causes for ten commonly observed concentration-response patterns and provides for the proper interpretation of the test endpoints derived from these patterns for NOECs, LC 50, and EC25, thereby reducing the number of misclassified test results. The guidance provides one of three determinations based on the review steps: (1) that calculated effect concentrations are reliable and should be reported, (2) that calculated effect concentrations are anomalous and should be explained, or (3) that the test was inconclusive and should be repeated with a newly collected sample. The standardized review of the effluent and receiving water concentration-response patterns provided by U.S. EPA's 2000 guidance decreased discrepancies in data interpretation for NOEC, LC 50, and EC25 test results, thereby lowering the chance that a truly nontoxic sample would be misclassified and reported as toxic.

Appropriate interpretation of the measurement result from U.S. EPA's TST statistical approach ("pass"/"fail") for effluent and receiving water samples is, by design, independent from the concentration-response patterns of the toxicity tests for those samples. Therefore, when using the TST statistical approach, application of U.S. EPA's 2000 guidance on effluent and receiving waters concentration-response patterns will not improve the appropriate interpretation of TST results as long as all Test Acceptability Criteria and other test review procedures - including those related to quality assurance for effluent and receiving water toxicity tests, reference toxicity tests, and control performance (mean, standard deviation, and coefficient of variation) - described by the WET test methods manual and TST guidance are followed. The 2000 guidance may be used to identify reliable, anomalous, or inconclusive concentration-response patterns and associated statistical results to the extent that the guidance recommends review of test procedures and laboratory performance already recommended in the WET test methods manual. The guidance does not apply to single-concentration (IWC) and control statistical t-tests and does not apply to the statistical assumptions on which the TST is based. The San Diego Water Board will not consider a concentration-response pattern as sufficient basis to determine that a TST t- test result for a toxicity test is anything other than valid, absent other evidence. In a toxicity laboratory, unexpected concentration-response patterns should not occur with any regular frequency and consistent reports of anomalous or inconclusive concentration-response patterns or test results that are not valid will require an investigation of laboratory practices.

Any Data Quality Objectives or Standard Operating Procedure used by the toxicity testing laboratory to identify and report valid, invalid, anomalous, or inconclusive effluent or receiving water toxicity test measurement results from the TST statistical approach which include a consideration of concentration-response patterns and/or Percent Minimum Significant Differences (PMSDs) must be submitted for review by the San Diego Water Board, in consultation with U.S. EPA Region IX, the State Water Board's Quality Assurance Officer, and Environmental Laboratory Accreditation Program (ELAP) (40 CFR section 122.44(h)). As described in the bioassay laboratory audit directives to the San Jose Creek Water Quality Laboratory from the State Water Board dated August 7, 2014, and from the U.S. EPA dated December 24, 2013, the PMSD criteria only apply to compliance for NOEC and the sublethal endpoints of the NOEC, and therefore are not used to interpret TST results.

D. Final Effluent Limitations

The following table lists the final effluent limitations established in this Order. Where this Order establishes mass emission limitations, these limitations have been derived based on a flowrate of 238 MGD.

Table F-14. Effluent Limitations[1]

Parameter	Units[2]	Effluent Limitations					
		Average Monthly	Average Weekly	Average Daily	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Total Suspended Solids(TSS)	mg/L	60	--	--	--	--	--
	lbs/day	119,095	--	--	--	--	--
pH	standard units	--	--	--	--	6.0	9.0
Oil and Grease	mg/L	25	40	--	--	--	75
	lbs/day	49,623	79,397	--	--	--	148,869
Settleable Solids	ml/L	1.0	1.5	--	--	--	3.0
Turbidity	NTU	75	100	--	--	--	225
Salinity	ppt[3]	--	--	42	--	--	--
OBJECTIVES FOR PROTECTION OF MARINE AQUATIC LIFE							
Chronic Toxicity[4]	Pass/Fail	--	--	--	Pass[6]	--	--
OBJECTIVES FOR PROTECTION OF HUMAN HEALTH – CARCINOGENS[1]							
TCDD Equivalents	µg/L	8.90E-08[5]	--	--	--	--	--
	lbs/day	1.77E-07	--	--	--	--	--

1 See Attachment A for definitions, abbreviations, and a glossary of common terms used in this Order.
2 The mass emission rate limitation (MER), in lbs/day, was calculated based on the following equation: MER (lbs/day) = 8.34 x Q x C, where Q is the flow rate of 238 MGD and C is the concentration in mg/L.
3 "ppt" is parts per thousand.
4 As specified in section III.C of the MRP (Attachment E).
5 Scientific "E" notation is used to express the effluent limitations TCDD equivalents. In scientific "E" notation, the number following the "E" indicates that position of the decimal point in the value. Negative numbers after the "E" indicate that the value is less than 1, and positive numbers after the "E" indicate that the value is greater than 1. In this notation a value of 6.1E-02 represents 6.1 x 0.01 or 0.061, 6.1E+02 represents 6.1 x 10^2 or 610, and 6.1E+00 represents 6.1 x 10^0 or 6.1.
6 As recommended in the USEPA's *Technical Support Document for Water Quality-based Toxics Control,* section 5.2.3, the maximum daily effluent limitation for chronic toxicity should be interpreted as signifying the maximum test result for the month

1. Anti-Backsliding Requirements

Sections 402(o) and 303(d)(4) of the CWA and federal regulations at 40 CFR section 122.44(l) prohibit backsliding in NPDES permits (see section III.C.5 of this Fact Sheet). These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed.

As discussed in section IV of this Fact Sheet, all effluent limitations contained in Order No. R9-2006-0065, are at least as stringent as those established in the previous order except for the salinity effluent limitation which is allowed due to a substantial alteration in the Facility's operations and based on new guidance from the State Water Board's Desalination Amendment of the Ocean Plan. The monitoring requirements in the MRP, (Attachment E), are designed to obtain additional information for parameters with performance objectives to determine if reasonable potential exists for these parameters in future permit renewals and/or updates.

Based on all of these considerations, this Order complies with all applicable federal and State anti-backsliding regulations.

2. Antidegradation Policies

WDRs for the Discharger must conform to antidegradation requirements discussed in section III.C.4 of this Fact Sheet. The State antidegradation policy requires that existing high quality waters be maintained unless it is demonstrated that any change is consistent with the maximum benefit to the people of the State, will not unreasonably effect current and possible beneficial uses, and will not result in water quality less than prescribed in applicable policies.

A comprehensive "complete" antidegradation analysis is required if the proposed change results in a substantial increase in mass emissions of pollutants or if the activity results in significant impact to aquatic life. Complete antidegradation analyses are not required if the change will not result in a significant impact to water quality.

The Discharger has proposed the following changes over the proposed permit term that are subject to an antidegradation review:

- Increasing the discharge volume of RO concentrate from a maximum monthly average flow rate of 54 MGD during co-located operations to a maximum daily flow of 60 MGD during stand-alone operations.
- Increasing the discharge of clarified filter backwash water from 4 MGD to 7 MGD.

The Discharger projects that the RO process will result in 99.6 percent of total dissolved solids (TDS) from the influent to the Facility being discharged to the ocean as RO concentrate. The Discharger also estimates that the concentrations of toxic pollutants in the RO concentrate may increase by approximately 4.8 percent as described in Appendix M to the ROWD. Based on data available to date, the increase in concentration of toxic pollutants in the RO concentrate is not anticipated to result in impacts to the receiving water beneficial uses or aquatic life and is not anticipated to exceed applicable water quality objectives established in Table 1 of the Ocean Plan.

This analysis does not consider the additional dilution provided by initial dilution in the receiving water, under which impacts to the receiving water would be significantly less, and thus providing an additional margin of safety. In addition to the increase in Ocean Plan Table 1 parameters, the operational changes needed for the proposed stand-alone operations are anticipated to increase salinity by approximately 4.8 percent, but salinity mass loading will be reduced by approximately 2.4 percent due to a decrease in dilution water used for flow augmentation as described in Appendix M to the ROWD. Thus, for the consideration of the discharge of the Ocean Plan's Table 1 parameters, the operational changes are consistent with State Water Board Resolution No. 68-16 and federal antidegradation provisions at 40 CFR section 131.12.

The resulting effluent limitation for salinity of 42.0 ppt is consistent with the Ocean Plan, providing for a receiving water salinity of up to 2.0 ppt above ambient at the edge of the BMZ. Based on the Discharger's assessment provided in Appendix M of the 2015 ROWD, under stand-alone operations, with unheated effluent and a negatively buoyant plume, salinities at the ocean bottom at 200 meters from the discharge point are projected to be within 2 ppt of ambient at all times.

As reported, the Discharger has not observed acute toxicity for effluent with salinity ranging from 40 to 42 ppt or chronic toxicity for effluent with salinities below 36 ppt[3].

[3] Please see Appendices G and H of the 2015 ROWD.

Thus, the increased salinity discharges are not anticipated to result in acute toxicity within the BMZ, or chronic toxicity at the edge of the zone of initial dilution.

Implementation of proposed stand-alone operations will result in identifiable increases above ambient conditions in the receiving water column salinity within and beyond the 200 meter BMZ. These increases are expected to be compliant with the Ocean Plan's receiving water objectives and beneficial uses, with significant impacts limited to the area within the BMZ resulting in greater than 2 ppt above background. As such, the increased salinity due to the operational changes are consistent with State Water Board Resolution No. 68-16 and federal antidegradation provisions at 40 CFR section 131.12.

The Facility's discharge is not anticipated to significantly impact Agua Hedionda Lagoon, with salinities in the lagoon remaining at ambient background levels under all proposed operating conditions.

Based on the Discharger's *Intake/Discharge Feasibility Report*, Appendices B, II, and YY of the 2015 ROWD, alternative intake and discharge facilities were evaluated, including subsurface intakes, a seafloor infiltration gallery, a lagoon-based seafloor infiltration gallery, discharging to an existing municipal ocean outfall, and a submerged diffuser.

Furthermore, future and expanded operation of the Facility is anticipated to provide:

- Improved sustainable regional water supply reliability of up to 60 MGD of drinking water per day, with a regional asset value of approximately $1 billion.
- A drought-resilient supply source for existing and planned local recycling and reuse projects.
- Decreased regional reliance on imported water supplies from the Sacramento Bay-Delta and the Colorado River, i.e. additional local water source reduces regional needs for imported water.
- Improved potable water quality, the water supply has lower TDS than other imported sources and recycled water which benefits residential, agricultural, and industrial customers.

The cumulative impacts of the proposed changes to the Facility's operations, and the associated discharge flows are not anticipated to significantly impact receiving water quality, will be protective of water quality objectives and beneficial uses, will provide important economic and social development, and are consistent with the maximum benefit to the people of the State. Based on all of these considerations, this Order is consistent with State and federal antidegradation requirements.

3. Stringency of Requirements for Individual Pollutants

This Order contains both TBELs and WQBELs for individual pollutants. The TBELs consist of restrictions on TSS, pH, oil and grease, settleable solids, and turbidity, which are discussed in section IV.B of this Fact Sheet. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. These limitations are not more stringent than required by the CWA.

WQBELs have been derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. The procedures for calculating the individual WQBELs are based on the State Water Board's Ocean Plan, which was approved by U.S. EPA on January 28, 2016. All beneficial uses and water quality objectives contained in the Basin Plan were approved under State law

and submitted to and approved by U.S. EPA prior to May 30, 2000. Any water quality objectives and beneficial uses submitted to U.S. EPA prior to May 30, 2000, but not approved by U.S. EPA before that date, are nonetheless "applicable water quality standards for purposes of the CWA" pursuant to 40 CFR section 131.21(c)(1). Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the requirements of the CWA.

E. Performance Goals

Constituents that do not have reasonable potential to cause or contribute to an exceedance of water quality standards are assigned performance goals in this Order. Performance goals serve to ensure that the Facility maintains existing effluent quality and supports State and federal antidegradation policies. Additionally, performance goals provide all interested parties with information regarding the expected levels of pollutants in the discharge that should not be exceeded in order to maintain the water quality objectives established in the Ocean Plan. Performance goals are not limitations or standards for the regulation of the discharge. Effluent concentrations above the performance goals will not be considered as violations of the Order but will serve as red flags that indicate water quality concerns. Repeated red flags may prompt the San Diego Water Board to reopen and amend the Order to replace performance goals for constituents of concern with effluent limitations, or the San Diego Water Board may coordinate such actions with the next permit reissuance. A summary of the performance goals is provided in Table F-13 of this Fact Sheet. A minimum probable initial dilution factor of 1:21.83 was used in establishing the performance goals.

F. Interim Effluent Limitations – Not Applicable

G. Intake and Discharge Specifications

Sections IV.C and IV.D of the Order provide narrative requirements for the intake of seawater and the discharge of effluent from the Facility. These provisions of the Order are necessary to implement the requirements specified in the Ocean Plan. The intake specifications implement chapter III.M.2.(d)(1) of the Ocean Plan; and discharge specifications implement chapter III.A.2 of the Ocean Plan.

H. Land Discharge Specifications – Not Applicable

I. Recycling Specifications – Not Applicable

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

Receiving water limitations in this Order are derived from the water quality objectives for ocean waters established by the Basin Plan and the Ocean Plan. Background salinity values established in the Order are representative of mean monthly background values based on data between 1993 through 2012 at the Scripps Pier reference station. As discussed in section IV.C.5 of the Fact Sheet, a BMZ of 200 meters has been established for evaluating compliance with the applicable salinity receiving water limitations.

Prior to 2009, the San Diego Water Board interpreted the Bacterial Characteristics Water-contact Standards of the Ocean Plan (Receiving Water Limitations section V.A.2 in the Order) to apply only in the zone bounded by the shoreline and a distance 1,000 feet from the shoreline or the 30-foot depth contour, whichever is farther from the shoreline, and within kelp beds. The Ocean Plan provides that these Bacteriological Standards also apply in designated areas outside this zone used for water contact sports, as determined by the San Diego Water Boards (i.e., all waters designated with the REC-1 beneficial use). These designated areas must be specifically defined in the Basin Plan. Because the San Diego Water Board has designated the ocean waters with the

REC-1 beneficial use in the Basin Plan, the Ocean Plan Bacterial Standards apply throughout State territorial marine waters in the San Diego Region, which extend from surface to bottom, out to three nautical miles from the shoreline. This interpretation has been confirmed by the U.S. EPA.

VI. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR section 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR section 122.42, are provided in Attachment D of this Order.

Sections 122.41(a)(1) and (b) through (n) of 40 CFR establish conditions that apply to all State-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. Section 123.25(a)(12) of 40 CFR allows the State to omit or modify conditions to impose more stringent requirements. In accordance with 40 CFR section 123.25, this Order omits federal conditions that address enforcement authority specified in 40 CFR sections 122.41(j)(5) and (k)(2) because the enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference Water Code section 13387(e).

B. Special Provisions

1. Reopener Provisions

This Order may be reopened and modified, revoked and reissued, or terminated in accordance with the provisions of 40 CFR parts 122, 123, 124, and 125. The San Diego Water Board may reopen the Order to modify permit conditions and requirements. Causes for modifications include, but are not limited to, increased/ modified receiving water requirements and participation in the Southern California Coastal Water Research Project (SCCWRP) model monitoring program; or the promulgation of new regulations by U.S. EPA, the State Water Board, or the San Diego Water Board, including revisions to the Ocean Plan or Basin Plan.

This Order may be reopened to modify provisions governing compliance with Water Code section 13142.5(b) and the Ocean Plan if the Discharger proposes a change in design or operation of the Facility in a manner that could increase intake or mortality of all forms of marine life, consistent with the Ocean Plan definition of an expanded facility, beyond that which is approved in this Water Code section 13142.5(b) determination. This Order may be reopened at any time for modification of provisions governing compliance with the receiving water limitation for salinity as set forth in Ocean Plan chapter III.M.3.

2. Special Studies, Technical Reports, and Additional Monitoring Requirements

a. Brine Discharge Technology Empirical Study

The Ocean Plan provides that brine discharge technologies other than wastewater dilution and multiport diffusers may be used if an owner or operator of a desalination facility can demonstrate to the San Diego Water Board that the technology provides a comparable level of intake and mortality of all forms of marine life as wastewater dilution if wastewater to dilute the facility's brine is available, or multiport diffusers if wastewater is unavailable.

As described in Attachment H to this Order and required by the Ocean Plan, the Discharger evaluated all of the individual and cumulative effects of the proposed flow

augmentation discharge method on the intake and mortality of marine life, including intake-related entrainment, osmotic stress, turbulence that occurs during water conveyance and mixing, and shearing stress at the point of discharge. The Discharger's evaluation has demonstrated to the San Diego Water Board's satisfaction at this time that wastewater dilution is not available, and that flow augmentation provides a comparable level of intake and mortality of all forms of marine life to the level of the multiport diffuser.

As described in Attachment H of this Order, the Water Code section 13142.5(b) determination must address the requirements of chapter III.M.2.d.(2)(c) of the Ocean Plan that when brine discharge technologies other than wastewater dilution and multiport diffusers are used, the Discharger must demonstrate that the alternative technology provides a comparable level of intake mortality as wastewater dilution or multiport diffusers, if feasible. Appendix CC of the 2015 ROWD and Attachment H of this Order conclude that wastewater dilution is not available at this time due to insufficient wastewater flow volumes, necessary capacity restrictions due to wastewater discharges during wet weather, and lack of access to the necessary infrastructure. Thus, for comparison purposes with the flow augmentation discharge method, the Discharger provided an evaluation based on a model multiport diffuser that would be located 4,000 feet offshore. The model multiport diffuser was designed to maximize dilution, minimize the size of the mixing zone, minimize the suspension of benthic sediments, and minimize marine life mortality.

The Discharger evaluated entrainment effects of each brine discharge alternative, consistent with chapter III.M.2.d.(2)(c)i through iii of the Ocean Plan, in Appendix A and K of the 2015 ROWD on the 2008 *EPS Impingement Mortality and Entrainment Characterization Study* performed by Tenera Environmental. The Discharger revised the entrainment effects calculations as recommended by the SAP and provided the results as Appendices FFF and GGG to the ROWD. The analysis determined that flow augmentation is at least equivalent when compared to the model multiport diffuser for marine life mortality.

Irrespective of the conclusions of the Discharger's ROWD and Attachment H of this Order, chapter III.M.2.d(2)(c)iv of the Ocean Plan requires that if an alternative brine discharge technology other than wastewater dilution and multiport diffusers (e.g. flow augmentation) is approved and implemented under this Order, an empirical study that evaluates intake and mortality of all forms of marine life associated with the alternative brine discharge technology must be submitted within a designated time frame. The requirements for submittal of a Brine Discharge Technology Empirical Study Final Report established in section VI.C.2.a of this Order are in conformance with the requirements mandated by chapter III.M.2.d.(2).(c).iv of the Ocean Plan. If the Final Report shows that the brine discharge technology results in more intake and mortality of marine life than if the Facility used wastewater dilution or multiport diffusers, then the Discharger must also submit with the Final Report a proposed schedule to either:

i. Cease using the alternative brine discharge technology and install and use wastewater dilution or multiport diffusers to discharge brine waste; *or*

ii. Re-design the alternative brine discharge technology system to minimize intake and mortality of all forms of marine life to a level that is comparable with wastewater dilution if wastewater is available or multiport diffusers if wastewater is unavailable, subject to San Diego Water Board approval.

At the time of this Order's adoption with the Water Code section 13142.5(b) determination, the San Diego Water Board is aware of a study by Dr. Philip Roberts, *Brine Diffusers and Shear Mortality*[4] April 2018 (Roberts report), that estimates the marine life mortality from a brine discharge through a multiport diffuser. As such, the Discharger's Brine Discharge Technology Empirical Study should include an analysis of the marine life impacts caused by brine discharged through multiport diffusers using the Roberts study. Poseidon may choose to include additional information for the San Diego Water Boards review, as warranted, in addition to an analysis using the Roberts study. The results of such analyses are subject to further review by the San Diego Water Board following Poseidon's submittal.

3. Receiving Water Violation Assessment

In the event of a violation of any receiving water limitation established within this Order, the San Diego Water Board may require the Discharger to perform a special study to investigate the nature and cause of the receiving water violation. The receiving water study shall identify measures needed to ensure future compliance with receiving water limitations. The Discharger shall submit the required study to the San Diego Water Board within 90 days of receipt of the San Diego Water Board notification of the need to perform a Receiving Water Violation Study.

4. Marine Life Mitigation Plan

Water Code section 13142.5(b) requires that the best available mitigation measures feasible shall be used to minimize the intake and mortality of all forms of marine life. The Ocean Plan provides requirements at chapter III.M.2.e. to implement mitigation measures in compliance with Water Code section 13142.5(b). The Ocean Plan provisions require that the Discharger estimate the marine life mortality resulting from construction and operation of the Facility that would occur following implementation of the best available site, design, and technology measures. A summary of the Discharger's estimation of marine life mortality from the best available intake and discharge technology for stand-alone operation is provided in findings 38 through 42 in Attachment H.1.

Based on the Discharger's estimation of marine life mortality, the wetland mitigation area required for marine life mortality impacts related to the Facility's stand-alone operations is 68.30 acres, as described in finding 42 of Attachment H.1. To fulfill the required mitigation acreage, the Discharger has chosen to complete a mitigation project pursuant to chapter III.M.2.e(3) of the Ocean Plan.

The San Diego Water Board has previously approved the Otay River Estuary Restoration Project to provide 66.4 acres of mitigation for the Facility's co-located and temporary stand-alone operations. Pursuant to Chapter III.M.2.e.(7)(a), the San Diego Water Board may account for the previously approved mitigation project. As described in finding 62 in Attachment H.1, the San Diego Water Board has chosen to allow the Discharger to include the previously approved 66.4 acre mitigation project towards the required 68.3 acres of mitigation required to offset marine life and habitat impacts attributable to the construction and operation of the Facility including Design Alternative 21. Therefore, the Discharger must provide an additional 1.9 acres of mitigation either through expansion of the approved mitigation project or through a separate mitigation project.

[4] Brine Diffusers and Shear Mortality, Philip J.W. Roberts, April 18, 2018 is available at this website: https://www.waterboards.ca.gov/santaana/water_issues/programs/Wastewater/Poseidon/2018/4-18-18_Diffuser_Analysis_Method.pdf

Section VI.C.2.c of the Order requires an updated Marine Life Mitigation Plan to ensure adequate mitigation is provided in compliance with the Ocean Plan and Water Code section 13142.5(b). To accomplish this, the Order requires an evaluation of the existing approved mitigation project (i.e. the Otay River Estuary Restoration Project) to determine if the additional required 1.9 acres of mitigation can be provided. If the existing mitigation project is not projected to provide the additional required mitigation, the Discharger must submit a plan to provide the additional mitigation. In addition, the Marine Life Mitigation Plan must demonstrate a means to account for the temporal loss of marine life that has occurred from the time that the Facility commenced operation to such time that the completed mitigation project meets performance standards.

Additional information regarding the mitigation requirements for the project is available in finding 62 of Attachment H.1.

5. Climate Action Plan

The Discharger is currently implementing an Energy Minimization and Green House Gas Reduction Plan ("GHG Plan") that the California Coastal Commission approved in 2008 to ensure that the Facility is not directly, or indirectly, contributing to climate change. While the operation of the Facility does not result in the direct emission of greenhouse gasses, the Discharger currently purchases electricity from San Diego Gas & Electric that indirectly contributes to emissions of greenhouse gasses. Under the terms of the GHG Plan, the Discharger is required to take all reasonable steps to minimize energy consumption and offset 100% of the indirect greenhouse gas emissions attributable to facility operations such that facility operations are "net carbon neutral" for the life of the project. The Discharger has purchased sufficient carbon offsets to fully offset the indirect greenhouse gas emissions associated with facility operations through 2021.

The Discharger's Energy Minimization and Green House Gas Reduction Plan may address some of the Climate Change Action Plan (CCAP) elements required by section IV.C.2.d of this Order to be submitted within three years of the effective date of this Order. Changing climate conditions may fundamentally alter the way desalination plants are designed and operated. Climate change research indicates the overarching driver of change is increased atmospheric carbon dioxide (CO2) from human activity. The increased CO2 emissions trigger changes to climatic patterns, which increase the intensity of sea level rise and coastal storm surges (Δ Sea Level), lead to more erratic rainfall and local weather patterns (Δ Weather Patterns), trigger a gradual warming of freshwater and ocean temperatures (Δ Water Temperature) and trigger changes to ocean water chemistry (Δ Water pH).

C. Best Management Practices and Pollution Prevention

Section IV.C.3.b of the Order requires that consistent with 40 CFR section 122.44(k), the Discharger shall continue to maintain and implement a Best Management Practices (BMP) Plan describing site-specific plans, procedures, and practices planned or implemented to prevent or minimize, the potential for release of significant amounts of toxic or hazardous pollutants to waters of the U.S. and/or State through normal operations and ancillary activities, including, but not limited to standard operating procedures. The BMP Plan must be developed in accordance with the *U.S. EPA Guidance Manual for Developing Best Management Practices* (EPA 833-B-93-004).

Section VI.C.4 of the Order requires the Discharger to develop and conduct a Pollutant Minimization Program, if needed to comply with the requirements of chapter III.C.9 of the Ocean Plan. The goal of the Pollutant Minimization Program is to reduce all potential sources

of a pollutant through pollutant minimization (control) strategies, including pollution prevention measures, in order to maintain the effluent concentration at or below the effluent limitation.

Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The completion and implementation of a Pollution Prevention Plan required in accordance with Water Code section 13263.3(d) would fulfill the Pollution Minimization Program requirements.

D. Construction, Operation, and Maintenance Specifications – Not Applicable

E. Special Provisions for Publicly Owned Treatment Works – Not Applicable

F. Other Special Provisions – Not Applicable

G. Compliance Schedule for Construction of the Stand-Alone Intake Structure

The 2009 Determination was expressly conditioned based on the expectation of the occurrence of a future event: 1) the permanent cessation of power generating activities at the co-located Encina Power Station and 2) the Discharger's submission of a new ROWD to operate Encina Power Station's intake infrastructure and discharge channel independently for the benefit of the Discharger's Facility in a stand-alone capacity. In that event, the 2009 Determination specified that the San Diego Water Board would undertake an additional analysis of the Facility's operation as a stand-alone facility to ensure compliance with Water Code section 13142.5(b). The San Diego Water Board has undertaken the analysis and concluded in Attachments H.1 and H.2 of this Order that, in order to continue operating the Facility during stand-alone conditions, the Discharger must construct a new intake structure and configuration capable of complying with the requirements of the Ocean Plan and Water Code section 13142.5(b). This new intake structure will supply both the source water for the Facility and also additional seawater to dilute the brine discharge.

The Ocean Plan at chapter III.M.2.a(5)(b) provides that the San Diego Water Board may allow up to five years from the date of the event, i.e. the permanent Encina Power Station shut down, for interim intake operations during stand-alone conditions to continue until the permanent new intake structure and configuration is constructed and operational in compliance with the Water Code section 13142.5(b) determination. The Ocean Plan also provides that the compliance period is contingent on the San Diego Water Board finding that 1) any water supply interruption resulting from the Facility modifications requires additional time for water users to obtain a temporary replacement supply, or 2) such a compliance period is otherwise in the public interest and reasonably required for modification of the Facility to comply with the determination.

The San Diego Water Board has concluded that a compliance schedule is in the public interest and reasonably required for modification of the Facility's intake structure to comply with Water Code section 13142.5(b) and the requirements of this Order. A compliance schedule is in the public interest, considering the technological, operational, economic, and permitting factors that affect the design, construction and implementation of the modified intake structure and the need to avoid Facility shut down and interruption of public drinking water supply during that period. Without this Facility supplying drinking water to the region, the long-term water supply plans and forecasts would require change and uncertainty exists if a replacement water supply can be secured during a potential five-year shutdown of the Facility. Based on these considerations a compliance schedule is provided in section IV.C.7.a, Table 7 of this Order to construct and make operational the required modifications of the Facility's intake structure.

During the compliance period until the new intake structure is constructed and operational, the Facility must implement interim measures to continue operating and supplying drinking

water. The Discharger will continue using the existing pumps, screens and intake structure that are currently in place at the Encina Power Station. As soon as possible but not later than April 30, 2020, the Discharger will install new low turbulence, pumps on-shore which should not require extensive permitting or amendments due to their on-shore location. In addition, the Discharger is required to implement measures that will minimize mortality of all forms of marine life until the new intake structure is constructed and operational. During interim operations, when the new pumps are operating and until the new screens for the permanent intake structure are constructed, the Facility will continue using the Encina Power Station's fish screens. The following measures are incorporated in section IV.C.7.c of this Order and are required to be implemented until the new intake structure is constructed and operational:

i. Surface water intakes must be screened using the existing Encina Power Station intake screens, and the screens must be functional while the Facility is withdrawing seawater;

ii. Axial-flow, low-turbulence pumps shall be constructed and made operational as soon as feasible but no later than the date specified in Table 7, Task 2;

iii. The intake of seawater shall be reduced to the minimum volume necessary to maintain Facility operations and to comply with this Order, subject to the operational limitations of the existing pumps prior to the new intake pumps being operational;

iv. To the maximum extent practicable, in-plant recycling of waste streams shall be maximized before intaking additional seawater;

v. The Discharger shall cease intake of seawater except when intake of seawater is necessary to maintain Facility operations or to comply with this Order;

vi. Heat treatment of the intake system is prohibited; and

vii. Pump operations shall minimize abrupt changes in flow velocity, subject to the operational limitations of the existing pumps prior to the new intake pumps being operational.

The compliance schedule is set forth in section VI.C.7 of the Order. This schedule may be modified by the San Diego Water Board upon request from the Discharger, based on issues related to regulatory approval, environmental review, or legal challenges. The tasks and associated due dates are enforceable to the maximum extent allowed by law.

H. Certification Report for New Intake Structure

Section VI.C.8 of the Order requires the Discharger to submit a certification report that the new intake structure will be designed in compliance with the requirements of the Ocean Plan, Water Code section 13142.5(b), and any other applicable requirements of this Order. The Certification must be prepared by a California licensed professional engineer, competent and proficient in the field pertinent to the report and qualified to prepare such a report. A statement of qualification of the responsible lead professional shall be included in the report. The signature and engineering license number of the engineer preparing the certification report shall be affixed to the report. The report must 1) identify the design capacity of the intake structure and screening; 2) certify the adequacy of key components of the intake structure, 3) include a summary of the results of updated studies for implementing wedgewire screens as the intake screening technology for the Facility, 4) contain an engineering analysis to ensure compliance with the requirements of the Ocean Plan, Water Code section 13142.5(b) and this Order; 5) and include the supporting documentation and rationale for the certification. The Certification Report is subject to review by the San Diego Water Board and the new intake

structure cannot initiate operation without written authorization from the San Diego Water Board.

I. Certification Report for New Intake Pumps

Section VI.C.9 of the Order requires the Discharger to submit a certification report that the new intake pumps will be designed in compliance with chapter III.M.2.d.(2)(d)(ii) of the Ocean Plan which states:

"At a facility that has received a conditional Water Code section 13142.5(b) determination and is over 80 percent constructed by January 28, 2016. If the owner or operator of the facility proposes to use flow augmentation as an alternative brine discharge technology, the facility must: use low turbulence intakes (e.g., screw centrifugal pumps or axial flow pumps) and conveyance pipes; convey and mix dilution water in a manner that limits thermal stress, osmotic stress, turbulent shear stress, and other factors that could cause intake and mortality of all forms of marine life; comply with chapter III.M.2.d.(1); and not discharge through multiport diffusers."

As explained in Finding 37 of Attachment H.1, the Facility meets the Ocean Plan's criteria for continued use of flow augmentation as an alternative brine discharge technology. The Facility received a conditional Water Code section 13142.5(b) determination in 2009 for co-located operations and temporary stand-alone operations and was over 80 percent constructed by January 28, 2016. The Discharger proposes to retrofit the Facility with new intake pumps that meet the requirements of the Ocean Plan. The certification report required under section VI.C.9 of the Order will ensure that the new intake pumps comply with the provisions of the Ocean Plan and Water Code section 13142.5(b), prior to the new intake pumps beginning operation.

VII. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

CWA section 308 and 40 CFR sections 122.41(h), (j)-(l), 122.44(i), and 122.48 require that all NPDES permits specify monitoring and reporting requirements. Water Code sections 13267 and 13383 also authorize the San Diego Water Board to establish monitoring, inspection, entry, reporting, and recordkeeping requirements. The MRP (Attachment E) establishes monitoring, reporting, and recordkeeping requirements that implement federal and State requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP (Attachment E) for this Facility.

A. Core Monitoring Requirements

The core monitoring requirements set forth in section III of the MRP (Attachment E to this Order) are designed to measure the characteristics of seawater prior to the desalination treatment process and to determine and quantify contaminants in the effluent. This monitoring is necessary to determine compliance with the Order's prohibitions, limitations, and water quality standards. The overall core monitoring program is intended to answer the following questions:

- Is the intake flow consistent with permit conditions and expectations?
- What is the concentration factor for pollutants within the effluent compared to the influent? Is this consistent with expectations considered during permit development?
- Are intake credits reasonable for future permit development efforts?
- Does the effluent comply with permit effluent limitations, performance goals, and other requirements of this Order, thereby ensuring that water quality standards are achieved in the receiving water?

- What is the mass of constituents that are discharged?
- Is the effluent concentration or mass loading changing over time?
- Is the Facility being properly operated and maintained to ensure compliance with the conditions of the Order?

1. Influent Monitoring Requirements

Influent monitoring is required to determine if the intake flow and the concentration factor for pollutants within the effluent compared to the influent is consistent with permit conditions and expectations. Refer to section III.A of the MRP (Attachment E) for the influent monitoring requirements. Influent monitoring requirements have been carried over from Order No. R9-2006-0065.

2. Effluent Monitoring Requirements

Effluent monitoring is required to determine compliance with the permit conditions, to identify operational problems, to ensure consistent or improved Facility performance, and to conduct reasonable potential analyses for subsequent Orders. Effluent monitoring also provides information on wastewater characteristics for use in interpreting water quality and biological data. The sample type for non-volatile analytes has been changed from grab to 24-hour composite. This Order clarifies the effluent monitoring when the Facility is not discharging brine.

Refer to section III.B of the MRP (Attachment E) for the effluent monitoring requirements.

3. Whole Effluent Toxicity Testing Requirements

This order contains chronic toxicity effluent limitations as described in section IV.C.6 of this Fact Sheet. Chronic toxicity limitations have been established in this Order based on U.S. EPA's TST method with a percent effect. As discussed in section IV.C.6 of this Fact Sheet, the monitoring location for WET has been revised from M-001 to M-002 to simplify monitoring requirements, to more accurately reflect the discharge's impact to receiving waters, and to ensure protection of water quality and aquatic life by implementing the WQBELs for toxicity as far downstream as possible, prior to discharge.

This Order requires the Discharger to conduct additional toxicity testing for exceedances of the toxicity effluent limitations. If the additional tests demonstrate toxicity, the Discharger is required to submit an incident specific Toxicity Reduction Evaluation (TRE) work plan in accordance with U.S. EPA guidance which shall include: further steps taken by the Discharger to investigate, identify, and correct the causes of toxicity; actions the Discharger will take to mitigate the effects of the discharge and prevent the recurrence of toxicity; and a schedule for these actions. This provision also includes requirements to conduct the TRE and Toxicity Identification Evaluation (TIE) process in accordance with the submitted work plan if the results of toxicity testing exceed the effluent limitations for toxicity. The rationale for WET testing is discussed in section IV.C.6 of this Fact Sheet.

Refer to section III.B of the MRP (Attachment E) for the effluent monitoring requirements.

Toxicity Reduction Evaluation (TRE)

Section III.C.10 of the Ocean Plan requires a TRE if a discharge consistently exceeds an effluent limitation based on a toxicity objective in Table 1 of the Ocean Plan. Consistent with the requirements of the Ocean Plan, section III.C.6 of the MRP (Attachment E) requires the Discharger to develop an Initial Investigation TRE work plan and submit the TRE work plan within 90 days of the effective date of this Order. The work plan must

describe steps the Discharger intends to follow if the effluent limitation for chronic toxicity is exceeded.

If the effluent limitation for chronic toxicity is exceeded in any one test, the Discharger must conduct a TRE if the toxicity is exceeded in any of the next four succeeding tests performed at 14-day intervals and notify the San Diego Water Board. The requirement for a minimum of four succeeding tests performed at 14-day intervals is based on the probability of encountering at least one toxicity exceedance assuming a true, but unknown level of occurrence. After the chronic toxicity exceedance, the Discharger must continue to conduct the routine monthly monitoring for chronic toxicity as required in the MRP (Attachment E). The TRE must be conducted in accordance with the approved TRE work plan and available U.S. EPA guidance. The Discharger must also implement a TIE, as necessary, based upon the magnitude and persistence of toxicity effluent limitation exceedances. Once the source of toxicity is identified, the Discharger must take all reasonable steps to reduce the toxicity to meet the chronic toxicity effluent limitation identified in section IV.A of this Order.

Within 30 days of completion of the TRE, the Discharger must submit the results of the TRE, including a summary of the findings, data generated, a list of corrective actions taken or planned to achieve consistent compliance with all the toxicity limitations of this Order and prevent recurrence of exceedances of those limitations, and a time schedule for implementation of any planned corrective actions. The Discharger must implement any planned corrective actions assigned to the Discharger in the TRE Final Report in accordance with the specified time schedule, unless otherwise directed in writing by the San Diego Water Board. The corrective actions and time schedule must be modified at the direction of the San Diego Water Board.

Refer to section III.B. of the MRP (Attachment E) for the effluent monitoring requirements.

4. Land Discharge Monitoring Requirements – Not Applicable

5. Recycling Monitoring Requirements – Not Applicable

B. Receiving Water Monitoring Requirements

The receiving water and sediment monitoring requirements set forth below are designed to measure the effects of the Facility's discharge on the receiving ocean waters. The overall receiving water monitoring program is intended to answer the following questions:

- Does the receiving water meet water quality standards?
- Are the receiving water conditions getting better or worse over time?
- What is the relative contribution of the Facility's discharge to pollution in the receiving water?
- What are the effects of the discharge on the receiving water?

1. Surf Zone Water Quality Monitoring Requirements

As ocean surface waves come closer to shore they break, forming the foamy, bubbly surface called surf. The region of breaking waves defines the surf zone.

Monitoring of the surf zone is intended to answer the following questions:

- Does the effluent cause or contribute to an exceedance of the water quality standards in the receiving water?

This Order increases the surf zone monitoring frequency from semiannually to quarterly to assess changes in the receiving water due to the shutdown of EPS.

Refer to section IV.A of the MRP (Attachment E) for the surf zone water quality monitoring requirements.

2. Offshore Water Quality Monitoring Requirements

Offshore monitoring extends north and south of the Encina Power Station discharge channel.

Offshore monitoring is necessary to answer the following questions:

- Does the discharge cause an increase in salinity of >2.0 ppt above ambient conditions?
- Does the discharge cause a discoloration of the ocean surface?
- Is the wastewater plume adversely impacting receiving water areas used for swimming, surfing, diving, and shellfish harvesting?

This Order establishes monitoring stations B-10 through B-40 to evaluate compliance with receiving water quality standards. Monitoring station D-10 has been moved to monitoring station B-10 due to their close proximity. The monitoring frequency at offshore monitoring stations has been increased from semiannually to quarterly. This Order requires measurements of temperature, salinity, pH, dissolved oxygen, and light transmittance to be taken throughout the water column using a CTD profiler. Continuous profiles provide a higher resolution of the conditions in the receiving water.

Refer to section IV.B of the MRP (Attachment E) for the offshore water quality monitoring requirements.

3. Benthic Monitoring Requirements

Sediments integrate constituents that are discharged to the ocean. Most particles that come from the discharge, and any associated contaminants, will eventually settle to the seafloor where they are incorporated into the existing sediments. Sediments can accumulate these particles over the years until the point where sediment quality has degraded, and beneficial uses are impaired. The benthic community is strongly affected by sediment composition and quality and water quality. Because the benthos are dependent on its surroundings, they serve as a biological indicator that reflects the overall conditions of the aquatic environment.

Section IV.C of the MRP (Attachment E) requires periodic assessment of sediment quality to evaluate potential effects of the Facility discharge and compliance with narrative water quality standards specified in the Ocean Plan. The required assessment consists of the measurement and integration of three lines of evidence: 1) physical and chemical properties of seafloor sediments, 2) seafloor sediment toxicity to assess bioavailability and toxicity of sediment contaminants, and 3) ecological status of the biological communities (benthos) that live in or on the seafloor sediments

Benthic monitoring is necessary to answer the following question:

- Is the concentration of substances, set forth in Table 1 of the Ocean Plan for protection of marine aquatic life, in marine sediments at levels which would degrade the benthic community?
- Is the concentration of organic pollutants in marine sediments at levels that would degrade the benthic community?
- Is the sediment quality changing over time?

This Order establishes benthic monitoring requirements at offshore monitoring stations B-00 through B-40, C-10, D-30, D-50 and E-10. Refer to section IV.C of the MRP (Attachment E) for the benthic monitoring requirements.

4. **Groundwater** – Not Applicable

C. Other Monitoring Requirements

1. Regional Monitoring Requirements

Regional ocean water monitoring provides information about the sources, fates, and effects of anthropogenic contaminants in the coastal marine environment necessary to make assessments over large areas. The large scale assessments provided by regional monitoring describe and evaluate cumulative effects of all anthropogenic inputs and enable better decision making regarding protection of beneficial uses of ocean waters. Regional monitoring data assists in the interpretation of core monitoring studies by providing a more accurate and complete characterization of reference conditions and natural variability. Regional monitoring also leads to methods standardization and improved quality control through intercalibration exercise. The coalitions implementing regional monitoring enable sharing of technical resources, trained personnel and associated costs. Focusing these resources on regional issues and developing a broader understanding of pollutants effects in ocean waters enables the development of more rapid and effective response strategies. Based on all of these considerations, the San Diego Water Board supports regional approaches to monitoring ocean waters.

The Discharger shall participate with other regulated entities, other interested parties, and the San Diego Water Board in development, refinement, implementation and coordination of regional monitoring and assessment programs for ocean waters in the San Diego Region and discharge to those waters, so as to answer the following questions:

- Determine the status and trends of conditions in ocean waters in the San Diego Region with regard to beneficial uses, e.g.,
  - **i.** Are fish and shellfish safe to eat?
  - **ii.** Is water quality safe for swimming?
  - **iii.** Are ecosystems healthy?
- Identify the primary stressors causing or contributing to conditions of concern;
- Identify the major sources of the stressors causing or contributing to conditions of concern; and
- Evaluate the effectiveness (i.e. environmental outcomes) of actions taken to address such stressors and sources.

During these coordinated sampling efforts, the Discharger's receiving water sampling and analytical effort, as defined in section IV of the MRP (Attachment E), may be reallocated to provide a regional assessment of the impact of the discharge to the ocean. In that event, the San Diego Water Board shall notify the Discharger in writing that the requirement to perform the receiving water sampling and analytical effort defined in section IV of the MRP (Attachment E) is suspended for the duration of the reallocation. Anticipated modifications to the monitoring program will be coordinated so as to provide a more comprehensive picture of the ecological and statistical significance of monitoring results and to determine cumulative impacts of various pollution sources. The level of resources in terms of sampling and analytical effort redirected from the receiving water monitoring program required under section IV of the MRP (Attachment E) shall equal the level of resources provided to implement the regional monitoring and assessment

program, unless the San Diego Water Board and the Discharger agree otherwise. The specific scope and duration of the receiving water monitoring program reallocation and redirection shall be determined and set by the San Diego Water Board in consultation with the Discharger. If the Discharger declines to participate in regional monitoring efforts, its ongoing sampling and analytical requirements will remain unchanged

2. Kelp Bed Canopy Monitoring Requirements

Kelp consists of a number of species of brown algae. Along the central and southern California coast, giant kelp (*Macrocystis pyrifera*) is the largest species colonizing rocky, and in some cases sandy, subtidal habitats. Giant kelp is an important component of coastal and island communities in southern California, providing food and habitat for numerous animals. Monitoring of the kelp beds is necessary to answer the following questions:

- What is the maximum areal extent of the coastal kelp bed canopies each year?
- What is the variability of the coastal kelp bed canopy over time?
- Are coastal kelp beds disappearing? If yes, what are factors that could contribute to the disappearance?
- Are new coastal kelp beds forming?

Refer to section V.A of the MRP (Attachment E) for the kelp bed canopy monitoring requirements.

3. Southern California Bight Monitoring

The Southern California Bight (Bight), defined as the concave bend of the shoreline extending from Point Conception to Punta Colonet in Mexico, is host to unique, biologically diverse marine ecosystems that have long been vulnerable to the impacts of human activity. The coastal zone of the Bight hosts nearly 22 million U.S. residents that engage in a wide variety of industrial, military, and recreational activities. Approximately 5,600 miles of watersheds, half of which is highly developed, drain into the Bight. The Southern California Bight Regional Monitoring Program brings together researchers and water-quality managers to pool their resources and work together to investigate the condition of marine ecosystems both spatially and temporally and extend greater protections to the Bight's diverse habitats and natural resources.

The Discharger is required to participate in the Southern California Bight Regional Monitoring Program coordinated by SCCWRP, or any other coordinator named by the San Diego Water Board, pursuant to Water Code sections 13267 and 13383, and 40 CFR section 122.48. The intent of the Southern California Bight Regional Monitoring Program is to maximize the efforts of all monitoring partners using a more cost-effective monitoring design and to best utilize the pooled scientific resources of the Southern California Bight.

During these coordinated sampling efforts, the Discharger's receiving water sampling and analytical effort, as defined in section IV of the MRP (Attachment E), may be reallocated to provide a regional assessment of the impact of the discharge of municipal wastewater to the Southern California Bight. In that event, the San Diego Water Board shall notify the Discharger in writing that the requirement to perform the receiving water sampling and analytical effort defined in section IV of the MRP (Attachment E) is suspended for the duration of the reallocation. Anticipated modifications to the monitoring program will be coordinated so as to provide a more comprehensive picture of the ecological and statistical significance of monitoring results and to determine cumulative